# UNITED STATES DEPARTMENT OF AGRICULTURE
# NATURAL RESOURCES CONSERVATION SERVICE

# ECOLOGICAL SITE DESCRIPTION

## ECOLOGICAL SITE CHARACTERISTICS

**Site Type**: Rangeland

**Site ID**: R070XA006NM

**Site Name**: Swale

**Precipitation or Climate Zone**: 14 to 16 inches

**Phase**:

## PHYSIOGRAPHIC FEATURES

**Narrative**:

This site is on concave, nearly level to gently sloping swales and depressions. Elevation ranges from 5,000 to 7,500 feet above sea level. These sites receive significant amounts of runoff, from adjoining sites, that increase the effective moisture with an increase in plant production. Slopes are generally 0 to 3 percent but may range to 5 percent.

**Land Form:**

1. Swale
2. Depression
3.

**Aspect:**

1. N/A
2.
3.

| | Minimum | Maximum |
|---|---|---|
| **Elevation (feet)** | 5,000 | 7,500 |
| **Slope (percent)** | 0 | 5 |
| **Water Table Depth (inches)** | N/A | N/A |

| **Flooding:** | **Minimum** | **Maximum** |
|---|---|---|
| **Frequency** | Rare | Occasional |
| **Duration** | Very brief | Brief |

| **Ponding:** | **Minimum** | **Maximum** |
|---|---|---|
| **Depth (inches)** | N/A | N/A |
| **Frequency** | N/A | N/A |
| **Duration** | N/A | N/A |

**Runoff Class**:

Negligible to medium.

## CLIMATIC FEATURES

**Narrative**:

The climate of this area can be classified as "semi-arid continental".

Precipitation averages 14 to 16 inches. Seventy seven percent of the year's moisture normally falls during the period of May through October. Practically all of it is brought by brief afternoon and evening thunderstorms. In July and August, normally the wettest months of the year, one can expect about one day in five when rainfall exceeds one-tenth inch. Early spring precipitation in May benefits the cool-season plants. Winter precipitation, supplying 24 percent of the year's moisture, normally has no more than two days a month with as much as one-tenth inch of moisture. Much of the winter precipitation falls as snow.

Air temperatures vary from a monthly mean of 20 degrees F in January to 69 degrees F in July. Daily high temperatures average in the 80's and low 90's during the summer. Winter low temperatures fall below the freezing mark much of the time from November through March with minimum temperatures approaching 25 degrees F below zero. Dates of the last killing frost may vary from May 9$^{th}$ through May 17$^{th}$, and the first killing frost from September 27$^{th}$ to October 8$^{th}$. The frost-free season ranges from 141 days to 153 days from early May to early October.

Wind velocities for the area average 10 to 12 miles per hour and prevail from the south and southwest. Generally, March is the windiest month. Strong winds during the spring cause rapid drying of the soil surface.

Nearby mountains to the west intercept much of the precipitation from the Pacific storms coming through this area during the winter. About 70 percent of the 14 to 16 inches of annual precipitation falls in the form of rainfall during the frost-free season. About 40 percent of the annual precipitation benefits cool-season plants, 50 percent benefits warm-season plants and 10 percent falls during the season of plant dormancy. Relative humidity is moderately low. The sun shines approximately 75 percent of the time.

Climate data was obtained from http://www.wrcc.sage.dri.edu/summary/climsmnm.html web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

| | Minimum | Maximum |
|---|---|---|
| **Frost-free period (days)**: | 132 | 149 |
| **Freeze-free period (days)**: | 153 | 171 |
| **Mean annual precipitation (inches)**: | 14 | 16 |

**Monthly moisture (inches) and temperature ($^0$F) distribution:**

| | Precip. Min. | Precip. Max. | Temp. Min. | Temp. Max. |
|---|---|---|---|---|
| January | .27 | .40 | 10.4 | 48.2 |
| February | .26 | .43 | 14.1 | 52.7 |
| March | .56 | .78 | 20.4 | 59.6 |
| April | .85 | 1.20 | 28.7 | 67.9 |
| May | 1.68 | 2.49 | 38.3 | 76.4 |
| June | 1.77 | 2.21 | 46.3 | 85.7 |
| July | 2.53 | 3.43 | 50.9 | 88.8 |
| August | 2.95 | 3.57 | 50.6 | 86.6 |
| September | 1.56 | 2.02 | 42.9 | 80.7 |
| October | 1.02 | 1.20 | 31.4 | 71.4 |
| November | .44 | .59 | 19.9 | 57.6 |
| December | .25 | .51 | 12.3 | 50.5 |

**Climate Stations**:

| | | | | Period | | |
|---|---|---|---|---|---|---|
| Station ID | 293706 | Location | Grenville, NM | From: 01/01/41 | To: | 12/31/01 |
| Station ID | 294856 | Location | Las Vegas FAA Airport, NM | From: 01/01/41 | To: | 12/31/01 |
| Station ID | 295490 | Location | Maxwell, NM | From: 01/01/14 | To: | 12/31/01 |
| Station ID | 297280 | Location | Raton KRTN Radio, NM | From: 12/01/78 | To: | 12/31/01 |
| Station ID | 298501 | Location | Springer, NM | From: 01/01/14 | To: | 12/31/01 |
| Station ID | 299330 | Location | Valmora, NM | From: 03/01/17 | To: | 12/31/01 |

## INFLUENCING WATER FEATURES

**Narrative**:

This site is not influenced by water from a wetland or stream.

**Wetland description:**

| System | Subsystem | Class |
|---|---|---|
| N/A | | |

**If Riverine Wetland System enter Rosgen Stream Type**:

N/A

## REPRESENTATIVE SOIL FEATURES

**Narrative**:

These are moderately well drained and well drained deep soils. Surface textures are fine sandy loam, loam, silty clay loam, clay loam or clay. The subsoils or subsurface horizons are loam, clay loam, silty clay loam or clay. Permeability is moderately slow to slow. Available water-holding capacity is high. Rooting depth is 40 to 60 inches, or more. The air-water relationship is favorable for plant growth.

**Parent Material Kind**: Alluvium
**Parent Material Origin**: Mixed

**Surface Texture:**

1. Fine sandy loam
2. Loam
3. Silty clay loam
4. Clay loam
5. Clay

**Surface Texture Modifier:**

1. N/A
2.
3.

**Subsurface Texture Group:** Loamy
**Surface Fragments <=3" (% Cover):** N/A
**Surface Fragments >3" (% Cover)**: N/A

**Subsurface Fragments <=3" (%Volume)**: N/A
**Subsurface Fragments >=3" (%Volume)**: N/A

| | Minimum | Maximum |
|---|---|---|
| **Drainage Class**: | Moderately well | Well |
| **Permeability Class**: | Impermeable | Moderately slow |
| **Depth (inches)**: | 60 | >72 |
| **Electrical Conductivity (mmhos/cm)**: | 0.00 | 8.00 |
| **Sodium Absorption Ratio**: | N/A | N/A |
| **Soil Reaction (1:1 Water)**: | 6.6 | 9.0 |
| **Soil Reaction (0.1M CaCl2)**: | N/A | N/A |
| **Available Water Capacity (inches)**: | 9 | 12 |
| **Calcium Carbonate Equivalent (percent)**: | N/A | N/A |

## PLANT COMMUNITIES

**Ecological Dynamics of the Site**:

**Plant Communities and Transitional Pathways (diagram)**

**Plant Community Name**: Historic Climax Plant Community

**Plant Community Sequence Number**: 1 **Narrative Label**: HCPC

**Plant Community Narrative**: Historic Climax Plant Community
This site is a grassland with an occasional shrub. Mid-grasses such as western wheatgrass, alkali sacaton and sideoats grama are dominant, with short-grasses and a variety of forbs. Grasses, with forbs and shrubs making up a minor portion of the plant community dominate this site. It occurs in the narrow elongated drainages that transport surface runoff from adjoining upland sites to the bottomlands. Because this site receives additional water, the plant community produces more than the adjoining sites.

| | |
|---|---|
| Canopy Cover: | |
| Trees | 0 |
| Shrubs and half shrubs | 5 % |
| Ground Cover (Aveage Percent of Surface Area). | |
| Grasses & Forbs | 35 |
| Bare ground | 50 |
| Surface gravel | 0 |
| Surface cobble and stone | 0 |
| Litter (percent) | 10 |
| Litter (average depth in cm.) | 2 |

**Plant Community Annual Production (by plant type)**:

**Annual Production (lbs/ac)**

| Plant Type | Low | RV | High |
|---|---|---|---|
| **Grass/Grasslike** | 935 | 1,530 | 2,125 |
| **Forb** | 110 | 180 | 250 |
| **Tree/Shrub/Vine** | 55 | 90 | 125 |
| **Lichen** | | | |
| **Moss** | | | |
| **Microbiotic Crusts** | | | |
| **Total** | 1,100 | 1,800 | 2,500 |

**Plant Community Composition and Group Annual Production**:

**Plant Type - Grass/Grasslike**

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|---|---|---|---|---|
| 1 | PASM | Western Wheatgrass | 360 – 450 | 360 – 450 |
| 2 | BOGR2 | Blue Grama | 360 – 450 | 360 – 450 |
| 3 | PAOB | Vine-mesquite | 360 – 450 | 360 – 450 |
| 4 | PLJA | Galleta | 90 – 270 | 90 – 270 |
| 5 | SPAI | Alkali Sacaton | 90 – 270 | 90 – 270 |
| 6 | BOCU | Sideoats Grama | 90 – 270 | 90 – 270 |
| 7 | BUDA | Buffalograss | 54 – 126 | 54 – 126 |
| 8 | DISP | Desert Saltgrass | 18 – 54 | 18 – 54 |
| 9 | MURI | Mat Muhly | 18 – 54 | 18 – 54 |
| 10 | ARIST | Threeawn spp. | 18 – 54 | 18 – 54 |
| 11 | ELEL5 | Bottlebrush Squirreltail | 36 – 90 | 36 – 90 |
| 12 | MURE | Creeping Muhly | 0 – 36 | 0 – 36 |

**Plant Type - Forb**

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|---|---|---|---|---|
| 13 | RACO3 | Upright Prairie Coneflower | 18 – 90 | 18 – 90 |
| 14 | AMPS | Western Ragweed | 18 – 90 | 18 – 90 |
| 15 | CINE | New Mexico Thistle | 18 – 90 | 18 – 90 |
| 16 | DALEA | Prairie Clover | 18 – 90 | 18 – 90 |
| 17 | 2FA | Other Annual Forbs | 36 – 90 | 36 – 90 |
| 18 | 2FP | Other Perennial Forbs | 36 – 90 | 36 – 90 |

**Plant Type – Tree/Shrub/Vine**

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|---|---|---|---|---|
| 19 | ATCA2 | Fourwing Saltbush | 0 – 90 | 0 – 90 |
| 20 | GUSA2 | Broom Snakeweed | 0 – 54 | 0 – 54 |
| 21 | ARFR3 | Fringed Sagewort | 0 – 54 | 0 – 54 |
| 22 | KRLA2 | Winterfat | 0 – 54 | 0 – 54 |

**Plant Type - Lichen**

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|---|---|---|---|---|
| | | | | |
| | | | | |

**Plant Type - Moss**

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|---|---|---|---|---|
| | | | | |
| | | | | |

**Plant Type - Microbiotic Crusts**

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|---|---|---|---|---|
| | | | | |
| | | | | |

**Plant Growth Curves**

**Growth Curve ID** 3706NM

**Growth Curve Name**: HCPC

**Growth Curve Description**: Grassland with a minor forb and shrub component.

| Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 3 | 5 | 10 | 10 | 25 | 30 | 12 | 5 | 0 | 0 |

# ECOLOGICAL SITE INTERPRETATIONS

**Animal Community**:

Habitat for Wildlife:

This site provides habitats which support a resident animal community that is characterized by pronghorn antelope, badger, black-tailed jackrabbit, meadow mole, marsh hawk, sparrow hawk, meadowlark, bullsnake, great plains skunk and ornate box turtle.

**Hydrology Functions:**

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

**Hydrologic Interpretations**

| Soil Series | Hydrologic Group |
|---|---|
| La Brier | D |
| Manzano | B |
| Vermejo | D |

**Wood Products**:

This site produces no significant wood products.

**Other Products**:

Grazing:

Approximately 95 percent of the annual yield is from species that furnish forage for grazing animals. This site can be grazed any season of the year by all classes and kinds of livestock. The variety of species that this site produces provided a good balanced feed and good nutrition for grazing animals. The site will occur as a complex within the adjoining upland units and makes up only a minor portion of the management unit. It can provide a major portion of the forage. Sufficient ground cover and herbage production needs to be maintained or the site will gully and production will be greatly reduced. Continuous yearlong grazing or continual grazing during the potential growing season (April through October) by livestock will result in a plant community dominated by blue grama. A system of deferred grazing, which varies the season of grazing and rest during successive year, is needed to maintain a healthy plant community and the balance between the cool-season species and the warm-season species. Spring rest benefits western wheatgrass and forbs. Summer rest will benefit vine-mesquite. Winter rest will benefit fourwing saltbush and fall rest will allow warm-season plants to mature.

| Other Information: |
|---|
| |

| Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month | |
|---|---|
| **Similarity Index** | **Ac/AUM** |
| 100 - 76 | 1.3 – 3.5 |
| 75 – 51 | 2.7 – 5.0 |
| 50 – 26 | 3.4 – 10.8 |
| 25 – 0 | 10.8+ |

| Plant Part | Code | Species Preference | Code |
|---|---|---|---|
| **Stems** | **S** | **None Selected** | **NS** |
| **Leaves** | **L** | **Preferred** | **P** |
| **Flowers** | **F** | **Desirable** | **D** |
| **Fruits/Seeds** | **F/S** | **Undesirable** | **U** |
| **Entire Plant** | **EP** | **Not Consumed** | **NC** |
| **Underground Parts** | **UP** | **Emergency** | **E** |
| | | **Toxic** | **T** |

**Plant Preference by Animal Kind**:

**Animal Kind**: Livestock
**Animal Type**: Cattle

| Common Name | Scientific Name | Plant Part | Forage Preferences | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | J | F | M | A | M | J | J | A | S | O | N | D |
| Sideoats Grama | Bouteloua curtipendula | EP | P | P | P | P | P | P | P | P | P | P | P | P |
| Western Wheatgrass | Pascopyrum smithii | EP | D | D | P | P | P | D | D | D | D | D | D | D |
| Bottlebrush Squirreltail | Elymus elymoides | EP | U | U | D | D | D | U | U | U | D | D | D | U |
| Vine-mesquite | Panicum obtusum | EP | D | D | D | D | D | D | D | D | D | D | D | D |
| Winterfat | Krascheninnikovia lanata | L/S | D | D | P | P | P | P | P | P | D | D | D | D |
| Fourwing Saltbush | Atriplex canescens | L/S | P | P | P | P | P | D | D | D | D | D | D | P |

**Animal Kind**: Livestock
**Animal Type**: Horse

| Common Name | Scientific Name | Plant Part | Forage Preferences | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | J | F | M | A | M | J | J | A | S | O | N | D |
| Sideoats Grama | Bouteloua curtipendula | EP | P | P | P | P | P | P | P | P | P | P | P | P |
| Western Wheatgrass | Pascopyrum smithii | EP | D | D | P | P | P | D | D | D | D | D | D | D |
| Bottlebrush Squirreltail | Elymus elymoides | EP | U | U | D | D | D | U | U | U | D | D | D | U |

**Animal Kind**: Livestock

**Animal Type**: Sheep

| Common Name | Scientific Name | Plant Part | Forage Preferences | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | J | F | M | A | M | J | J | A | S | O | N | D |
| Bottlebrush Squirreltail | Elymus elymoides | EP | U | U | D | D | D | U | U | U | U | U | U | U |
| Fringed Sagewort | Artemisia frigida | L/S | D | D | U | U | U | U | U | U | D | D | D | D |
| Prairie Clover | Dalea spp. | EP | P | P | P | P | P | P | P | P | P | P | P | P |
| Aster | Aster spp. | EP | U | U | D | D | D | D | D | D | U | U | U | U |

**Animal Kind**: Wildlife
**Animal Type**: Antelope

| Common Name | Scientific Name | Plant Part | Forage Preferences | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | J | F | M | A | M | J | J | A | S | O | N | D |
| Bottlebrush Squirreltail | Elymus elymoides | EP | U | U | D | D | D | U | U | U | U | U | U | U |
| Scarlet Globemallow | Sphaeralcea coccinea | EP | U | U | P | P | P | D | D | D | D | D | D | U |
| Prairie Clover | Dalea spp. | EP | P | P | P | P | P | P | P | P | P | P | P | P |
| Aster | Aster spp. | EP | U | U | D | D | D | D | D | D | U | U | U | U |

## SUPPORTING INFORMATION

**Associated sites**:

| Site Name | Site ID | Site Narrative |
|---|---|---|
| | | |

**Similar sites**:

| Site Name | Site ID | Site Narrative |
|---|---|---|
| | | |

**State Correlation**:

**This site has been correlated with the following sites**: _____

**Inventory Data References**:

| Data Source | # of Records | Sample Period | State | County |
|---|---|---|---|---|
| | | | | |

**Type Locality**:

**State**: New Mexico

**County**: Colfax, Mora, San Miguel, Union

**Latitude**: _____

**Longitude**: _____

**Township**: _____

**Range**: _____

**Section**: _____

**Is the type locality sensitive?** **Yes** ☐ **No** ☐

**General Legal Description**: _____

| **Relationship to Other Established Classifications**: |
|---|
| |

**Other References:**

Data collection for this site was done in conjunction with the progressive soil surveys within the Pecos-Canadian Plains and Valleys 70 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: Colfax, Mora, San Miguel, Union.

| **Characteristic Soils Are:** | |
|---|---|
| La Brier | Manzano |
| Vermejo | |
| **Other Soils included are:** | |
| | |

**Site Description Approval:**

| Author | Date | Approval | Date |
|---|---|---|---|
| Don Sylvester | 07/27/77 | Don Sylvester | |

**Site Description Revision:**

| Author | Date | Approval | Date |
|---|---|---|---|
| Elizabeth Wright | 08/22/02 | George Chavez | 12/17/02 |